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## DESCRIPTION

Optically active quaternary ammonium salt having axial asymmetry and process for producing  $\alpha$ -amino acid and derivative thereof with the same

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### Cross-reference to Related Applications

This application is a U.S. National Phase entry of PCT International Application No. PCT/JP2005/001623 filed on January 27, 2005, which claims the benefit and priority of Japanese patent applications 2004-023317 filed on January 30, 2004 and 2004-056659 filed on March 1, 2004.

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### Technical Field

The present invention relates to an optically active quaternary ammonium salt having axial asymmetry and a method for producing the same. The present invention further relates to a method for producing an optically active  $\alpha$ -amino acid and derivatives thereof, by using this optically active quaternary ammonium salt having axial asymmetry as a phase-transfer catalyst.

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### Background Art

$\alpha$ -Alkyl- $\alpha$ -amino acids represented by the formula  $\text{H}_2\text{NCH(R)COOH}$  are very important naturally occurring amino acids. Most of the  $\alpha$ -alkyl- $\alpha$ -amino acids exist in animals, plants, microorganisms or the like in the L-form having a L-configuration at  $\alpha$  position carbon, and the L-form constitutes a polypeptide chain. On the other hand, the D-form exists in plants, fungi or microorganisms as a

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